**National Organic Standards Board**
**Crops Committee Recommendation for Guidance**
**Use of Compost, Vermicompost, Processed Manure, and Compost teas**
**Draft 3- Rose's modifications**

## Introduction

Section 205.203(c) of the soil fertility and crop nutrient management practice standard in the USDA Standard sets forth the fundamental requirement for processing and applying plant and animal materials. The section states, "The producer must manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances". Subsequently, Section 205.203(c) states that plant and animal materials include raw animal manure (205.203(c)(1)), compost (205.203(c)(2)), and uncomposted plant materials (205.203(c)(3)). The USDA Standard establishes that raw animal manure and uncomposted plant materials are distinct materials that, when combined and processed, yield compost. The Standard also contains management restrictions for crops on which raw manure has been applied and specifies the conditions that must be maintained to process compost. Other than the common requirement that all production practices used in organic production must maintain or improve the natural resources of the operation, including soil and water quality, the Standard does not have processing or application restrictions or conditions for using composted or uncomposted plant materials that are not mixed with animal materials.

In April, 2002 the Compost Task Force Recommendation was presented to the NOSB and subsequently approved as a recommendation to the NOP. In October 2004, a separate report and recommendation was presented to the NOSB regarding compost tea. This document and recommendations were approved by the NOSB and the Crops Committee were directed by the Board to determine the necessary work that needed to be done to clarify these documents to the public . This document serves solely to describe and present the recommendations contained within both reports, in a concise format and in a single document to re-state the NOSB guidance recommendations on the interpretations of the applicable sections of the NOP regulation. This document presents recommendations based on the findings of the Compost Task Force (Addendum A) and the Compost Tea Task Force (Addendum B).

## Recommendations

Producers of any agricultural commodity or product certified as organic under the National Organic Program (NOP) must meet the fundamental requirements for processing and applying plant and animal materials for soil fertility and crop nutrient management practices as described in Section 205.203 (c) of the final regulation. Examples of plant and animal materials are described in Section 205.203 (c) 1-5. This

recommendation denotes other materials that would be acceptable under 205.203 (c) (2) which applies to plant and animal material mixes. With the exception of compost teas, there are no specific regulations for composting when feedstock is made up of only plant material.

1. Compost, in addition to that described in section 205.203 (c) (2), is acceptable if (i) made from only allowed feedstock materials, except for incidental residues that will not lead to contamination (ii) the compost undergoes an increase in temperature to at least 131 $^{o}$ F (55 $^{o}$C) and remains there for a minimum of 3 days, and (iii) the compost pile is mixed or managed to ensure that all of the feedstock heats to the minimum temperature.

   The monitoring of the above parameters must be documented in the Organic System Plan (plan) submitted by the producer and verified during the site visit. An explanation of compliance with section 205. 203 (c) should also be presented in the plan.

2. Vermicompost is acceptable if (i) made from only allowed feedstock materials, except for incidental residues that will not lead to contamination, (ii) aerobicity is maintained by regular additions of thin layers of organic matter at 1-3 day intervals, (iii) moisture is maintained at 70-90% and (iv) duration of vermicomposting is at least 12 months for outdoor windrows, 4 months for indoor container systems, 4 months for angled wedge systems, or 60 days for continuous flow reactors.

3. Processed manure materials must be made form manure that has been heated to a temperature in excess of 150 o F (65 o C) for one hour or more and dried to a moisture level of 12% or less, or an equivalent heating and drying process that produces a product that is negative for pathogenic contamination by *Samonella* and fecal coliform material.

4. Compost teas must be made with potable water. Equipment used to prepare compost tea must be sanitized before use with a sanitizing agent as defined by 21 CFR 178.1010. Compost tea should be made with compliant compost or vermicompost, using the NOSB recommendation for compost and vermicompost mentioned above, and as defined in section 205.203 (c) (2) of the NOP rule. For compost tea, this applies to 100% plant feedstock materials, in addition to manure feedstocks because non-manure compost feedstocks may harbor high levels of fecal bacteria.

   Compost tea made without compost tea additives can be applied without restriction. Compost tea made with compost tea additives can be applied without restriction if the compost tea production system (same compost batch, additives, and equipment) has been pre-tested to produce compost tea that meets the EPA

recommended recreational water quality guidelines for a bacterial indicator of fecal contamination (US EPA, 2000). These indicators and the passing criteria are Escherichia coli (126 CFU/100ml) or enterococci (33 CFU/100ml). At least two compost tea batches must be tested using accepted methodology (APHA-AWWA-WEF, 1999; US EPA, 2000), with the average population of indicator bacteria across compost tea batches used as the measurement of passing. Each new batch of compost would require that the system quality assurance pre-test be conducted again as indicated. After it passes again, compost tea from the system can be used without restriction.

If compost tea made with compost tea additives has not been pre-tested for indicator bacteria, its use on food crops is restricted to the 90/120 day pre-harvest interval. Crops not intended for human consumption, ornamental plants, and grain crops intended for human consumption are exempt from bacterial testing and 90/120 day pre-harvest interval restrictions. Compost extracts - resulting from any mixture of compost, water, additives, and adjuvants that are not held for more than one hour before use - may be applied without restriction. Raw manure extracts or teas may be applied to the soil with a 90/120 day pre-harvest restriction. Foliar applications of raw manure extracts or teas are prohibited. Compost leachate may be applied to the soil with a 90/120 day pre-harvest restriction. Foliar applications of compost leachate are prohibited. Compost tea is not allowed for the production of edible seed sprouts.

**Committee vote**

To be determined

# Addendum A:

**National Organic Standards Board**
**Compost Task Force Recommendation**
**April 18, 2002**

INTRODUCTION

Section 205.203(c) of the soil fertility and crop nutrient management practice standard in the USDA standard sets forth the fundamental requirement for processing and applying plant and animal materials. The section states, "The producer must manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances". Subsequently, Section 205.203(c) states that plant and animal materials include raw animal manure (205.203(c)(1)), compost (205.203(c)(2)), and uncomposted plant materials (205.203(c)(3)). The USDA standard establishes that raw animal manure and uncomposted plant materials are distinct materials that, when combined and processed, yield compost. The standard also contains management restrictions for crops on which raw manure has been applied and specifies the conditions that must be maintained to process compost. Other than the common requirement that all production practices used in organic production must maintain or improve the natural resources of the operation, including soil and water quality, there are no processing or application restrictions or conditions for using composted or uncomposted plant materials that are not mixed with animal materials.

At its Washington, DC meeting in October 2001, the National Organic Standards Board (NOSB) reviewed the provisions in the USDA standard for processing and applying plant and animal materials. While supportive of the fundamental requirement established in Section 205.203(c), the NOSB expressed concern that the provisions in Section 205.203(c)(1)-(3) could excessively restrict the processing and application of beneficial plant and animal materials. The NOSB identified specific weaknesses in this part of the practice standard, including:

*The C:N ratio range for compost is too narrow. Quality compost can be made with C:N ratios from as low as 15:1 and up to 60:1.

*The requirement for turning compost in a windrow system five times is too prescriptive.

*The terms in-vessel, static aerated, windrow, and raw manure are not defined.

*Compost tea is not addressed

*Vermicompost products are not addressed

# Addendum B:

## National Organic Standards Board

## Compost Tea Task Force Report

**April 6, 2004**

### Introduction

In 2003, the National Organic Standards Board convened a Compost Tea Task Force to review the relevant scientific data and report their recommendations on *'What constitutes a reasonable use of compost tea?'* The Task Force was composed of 13 individuals (Appendix B) with knowledge and expertise in organic farming practices, organic certification, EPA pathogen regulations, compost, compost tea production and analysis, plant pathology, food safety and environmental microbiology. Throughout their discussions, members consistently acknowledged the growing interest among certified organic and conventional growers to use compost teas, and the need to develop effective biologically-based tools to manage plant fertility, pests, and diseases. A major focus of the Task Force was concern about the potential for compost tea to contaminate edible plants with human pathogens as regulated in Section 205.203 of the USDA National Organic Program Final Rule. Addressing potential contamination by human pathogens required an examination of compost tea production and use practices, along with the underlying science relative to human pathogen contamination of crop plants.

Use of the terms compost and vermicompost in this report refer to the definitions set forth in the NOSB Compost Task Force report of April, 2002 (NOSB, 2002). These definitions are printed in the glossary below, along with additional terminology and definitions used in this report. Hereafter in this report, 'compost' shall refer to both compost and vermicompost. Likewise, 'compost tea' shall refer to both compost tea and vermicompost tea.

### Background

Compost tea practitioners are largely responsible for developing the wide array of compost tea production practices and uses of compost tea in plant pest, disease, and fertility management programs (reviewed in Brinton, 1995; Brinton et al, 1996; Diver, 1998 and 2001; Ingham, 2003; Quarles, 2001; Scheuerell and Mahaffee, 2002; Touart, 2000). In comparison to the extensive experiences reported by practitioners, relatively few peer-reviewed reports describe scientific studies on the production and use of compost teas; most research reports relate to the efficacy of compost teas for plant disease control (reviewed in Weltzien, 1991; Scheuerell and Mahaffee, 2002). Because much of the available information on compost tea practices and effects has not been rigorously or scientifically documented, this report attempts to distinguish between existing